

EXHIBIT 2



GIPC
Global Intellectual Property Center
U.S. CHAMBER OF COMMERCE

MEASURING THE MAGNITUDE OF GLOBAL COUNTERFEITING

Creation of a Contemporary Global
Measure of Physical Counterfeiting



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Executive Summary

Counterfeiting today represents a tremendous and ever increasing global threat. Counterfeit products—from goods and merchandise, tobacco products and industrial parts to currency and medicines—circulate across the globe. Yet these products cause real damage to consumers, industries and economies. First and foremost, counterfeit goods jeopardize consumers and pose a serious safety risk: fake toys contain hazardous and prohibited chemicals and detachable small parts; brake pads made of compressed grass; counterfeit microchips for civilian aircrafts; all these and many more may and tragically already have led to injuries and deaths. Counterfeit products also result in detrimental effects on economies due to decreased innovation, loss of revenue and taxation, and higher employment rate. Disturbingly, a growing body of evidence draws a clear link between physical counterfeiting and terrorist groups which exploit the easy-made money and high profit margin to fund terror activities around the world.

The continuous growth of the global counterfeiting industry is a major cause for concern. Fueled by the proliferation of internet use and social media platforms, the magnitude of global physical counterfeiting is estimated to have increased considerably since the beginning of this century.

One prominent example for this increase is reflected in the OECD's studies on global counterfeiting. In its first study from 2008—*The Economic Impact of Counterfeiting and Piracy*—the OECD estimated that global trade of counterfeit goods accounted for 1.9% of world trade in 2007, or 250 billion USD.¹ In its recently published study of 2016—*Trade in Counterfeit and Pirated Goods: Mapping the Economic Impact*—the OECD now estimates that global trade-related counterfeiting accounts for 2.5% of world trade, or 461 billion USD.²

A key finding from these two OECD studies is that global counterfeiting has grown **both** organically with a growth rate of 0.6% (of its estimated share of world trade), and, since world trade has in itself increased constantly since 2009, also grown in its overall dollar figure.

In this context, the US Chamber's *Measuring the Magnitude of Global Counterfeiting* study seeks to make a contribution to this growing body of literature and complement the OECD's work in two ways:

1. The study provides a deep-dive analysis of trade-related physical counterfeiting on a **comparative level**, and;
2. It provides a breakdown of the share of the global rate of physical counterfeiting (as both a percentage and with a USD figure) for the 38 economies included in the 2016 U.S. Chamber of Commerce's GIPC International IP Index (fourth edition published in February 2016) **based on new modeling of an economy's propensity for counterfeiting, including factors such as broader levels of IP enforcement and estimated rates of corruption.**

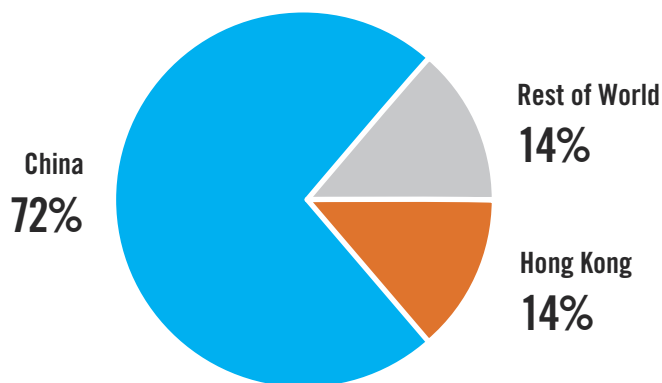
¹ OECD, (2009). "Magnitude of Counterfeiting and Piracy of Tangible Products: An Update", November 2009, OECD Publishing, Paris.

² OECD/EUIPO, (2016). *Trade in Counterfeit and Pirated Goods: Mapping the Economic Impact*, OECD Publishing, Paris.

The study makes the following key findings:

1. China alone is estimated to be the source for more than 70% of global physical trade-related counterfeiting, amounting to more than 285 billion USD. Physical counterfeiting accounts for the equivalent of 12.5% of China's exports of goods and over 1.5% of its GDP. China and Hong Kong together are estimated as the source for 86% of global physical counterfeiting, which translates into 396.5 billion USD worth of counterfeit goods each year.

China and Hong Kong's aggregated share (%) of seized counterfeit goods by U.S., EU, and Japanese customs authorities, 2010–2014³



Sources: U.S. Customs and Border Protection; European Commission Taxation and Customs Union; Japanese customs; analysis: Pugatch Consilium

2. Despite China and Hong Kong's dominant share of global counterfeiting, a considerable amount of physical counterfeiting activity as share of world trade can be attributed to other economies as well. Indeed, the level of counterfeiting activity attributed to some economies is substantial and bears significant economic and public health implications, both locally and internationally.
3. In addition to the modeled estimates of rates of global physical counterfeiting and percentage attributed to each economy, this report has also examined the value of seized counterfeit goods in the 38 economies sampled and the World Customs Organization (WCO). The value of counterfeit goods seized and reported by customs authorities today from our sample of 38 economies (\$5.2 billion) represents slightly less than 2.5% of the global measure of physical counterfeiting of \$461 billion dollars. This suggests that though customs authorities' activities yield results and their efforts are highly laudable, the extent of their successes still represents "a drop in an ocean."

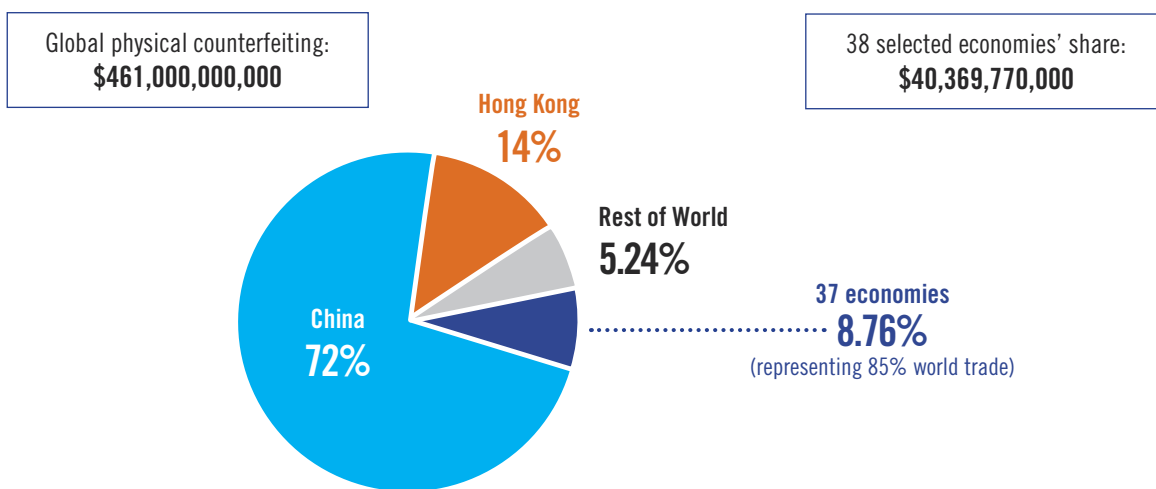
³ Seizure data were collected from annual reports published between 2010 and 2014 (inclusive) by the customs authorities in each economy and region (2010–2013 by European Union customs); together these economies and regions represent the world's three largest markets for counterfeit goods. China and Hong Kong's respective share for each year as reported by each of the three customs authorities was aggregated and averaged in order to control for random variations and provide a more precise figure.

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This does not mean to say that economies should not continue to step up efforts to combat counterfeiting. Recent actions taken by economies include enhancing customs authorities' scope of action, strengthening IP protection, introducing targeted measures aimed at deterring counterfeiting, and joining international trade and enforcement initiatives. Taken together, these steps are expected to increase economies' ability to limit counterfeiting activities both domestically and globally over time.

4. Our analysis of seizure data from customs authorities shows that the dearth of seizure data is acute. Of the 38 economies examined in this study, only a third of the customs authorities publish data. Moreover, only a small proportion of these publish reliable, consistent, and detailed seizure statistics. Additionally, the data are often focused on intermittent seizures of varying scope and so do not necessarily reflect systematic efforts against counterfeiting.

Top 10 Economies' Relative Share in Global Physical Counterfeiting



RANK	ECONOMY	Share (in USD) of global physical counterfeiting	Percentage of the 38 economies' share of global physical counterfeiting	Percentage of total global physical counterfeiting figure
1	Ukraine	\$1,980,812,670	4.91%	0.43%
2	India	\$1,772,500,223	4.39%	0.38%
3	Russia	\$1,727,389,244	4.28%	0.37%
4	Turkey	\$1,720,857,842	4.26%	0.37%
5	Argentina	\$1,714,143,665	4.25%	0.37%
6	Thailand	\$1,679,629,489	4.16%	0.36%
7	Indonesia	\$1,603,262,413	3.97%	0.35%
8	Vietnam	\$1,532,898,029	3.80%	0.33%
9	Peru	\$1,518,685,756	3.76%	0.33%
10	Nigeria	\$1,445,866,781	3.58%	0.31%

Introduction

“If you want to be original, be ready to be copied.”

— COCO CHANEL

Counterfeiting today represents a tremendous and ever-increasing global threat. Counterfeit products—from goods and merchandise, tobacco products, and industrial parts to banknotes and medicines—circulate across the globe. These products cause real damage to consumers, industries, and economies. For example, counterfeit automotive parts are often of very poor quality and lead to failure, fake batteries and chargers may explode or catch fire, counterfeit clothes and alcohol contain excessive levels of dangerous chemicals, and fake toys may contain hazardous and prohibited chemicals.² In addition, counterfeit medicines may be composed of dangerous or contaminated substances and sometimes do not even contain an active ingredient.³ The significant potential for dangerous ingredients or parts in counterfeit products, and resulting adverse events, constitute a serious health and safety risk.

Counterfeiting also has detrimental effects on industries as well as on economies. The direct impact of counterfeiting is the loss of revenue, which is estimated at billions of dollars for any given industry.⁴ However, the indirect effects enhance the negative impact beyond the scope of industries to economies. The U.S. Government Accountability Office (GAO) has found that in the United States counterfeiting has resulted in decreased innovation, loss of trade revenues, higher rates of unemployment, and overall slower economic growth.⁵ Globally, it is estimated that counterfeiting has resulted in the loss of 2.5 million jobs and more than 60 billion euros in tax revenue losses among the G20 economies.⁶

The continuous growth of the global counterfeiting industry is a major cause for concern. Fueled by the proliferation of Internet use and social media platforms, the magnitude of global physical counterfeiting is estimated to have increased significantly since the beginning of this century.⁷

In this context, the purpose of this study is twofold: 1) to provides a deep-dive analysis of trade-related physical counterfeiting on a **comparative level**, and; 2) to provides a breakdown of the share of the global rate of physical counterfeiting (as both a percentage and with a USD figure) for the 38 economies included in the 2016 U.S. Chamber of Commerce’s GIPC International IP Index (4th Ed.) based on new modeling of an economy’s propensity for counterfeiting, including factors such as broader levels of IP enforcement and estimated rates of corruption. This is achieved by:

- 1) Establishing the division of the global physical counterfeiting percentage with respect to the anomaly of China and Hong Kong’s prominence; and
- 2) Evaluating the propensity/likelihood of physical trade-related counterfeiting in a sample of 38 economies by creating a proprietary metric of three equally weighted factors using several datasets, and assign each economy with a percentage and monetary value share of global physical counterfeiting.

This report consists of four sections:

The first section provides a brief overview of the state of trade-related physical counterfeiting today—its risks, hazards, and negative effects (including its link to criminal activity), as well as its global reach into virtually every available market and sector.

The second section examines the current status of measuring counterfeiting, including existing challenges and gaps as well as key trends and changes to the global counterfeiting landscape.

The third section presents the methodology and results of a current estimate of trade-related physical counterfeiting from two unique angles: 1) a deep-dive analysis of trade-related physical counterfeiting on a comparative level; and 2) a breakdown of the share of the global rate of physical counterfeiting (as both a percentage and with a USD figure) for the 38 economies included in the 2016 U.S. Chamber of Commerce's GIPC International IP Index (4th Ed.) based on new modeling of an economy's propensity for counterfeiting, including factors such as broader levels of IP enforcement and estimated rates of corruption. This is achieved by:

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The final section offers concluding thoughts and an overview of the study's key findings.

1. Counterfeiting: A Global Threat

Counterfeiting of goods has existed as an unwanted integral part of trade since its earliest days.¹⁰ Yet its proliferation to some 5–10% of world trade has occurred in only the past few decades.¹¹ This rise can be particularly attributed to the globalization and segmentation of merchandise supply chains, shifts in production power toward Asia, weak frameworks against counterfeiting in these markets, and the emergence of the Internet as a global trade platform.¹³

As counterfeiting continues its exponential growth, so grows the real threat to public safety, economic growth, and international trade.¹⁴ The immense scale of this threat, now recognized by governments in many economies, has resulted in varied legislative acts and countermeasures within economies and at borders.

This section provides a brief overview of counterfeiting; its negative effects on consumers and economies, both locally and globally; and the measures taken to identify, enforce, and deter it.

1.1 | Counterfeiting 101

Counterfeiting falls under the general umbrella of intellectual property rights infringement. Intellectual property rights, such as patent, trademark, and copyright protection, grant their owners a limited term of protection and exclusive conditions. The underlying rationale behind these forms of protection is to acknowledge the economic and social benefits of an invention, creation, or good by rewarding rights owners with a temporary commercial advantage. In return, society benefits from enrichment of public knowledge, arts, and culture; maintaining of fair competition and promotion of high-quality goods and services; and fostering of innovation and artistic creation.¹⁵ Table 1 outlines the basic elements and protection afforded by key types of intellectual property rights.

IP crimes, or infringement of intellectual property rights, consist of several forms and vary by the nature of the activity. With respect to merchandise, it is worth distinguishing between counterfeiting and piracy.

Counterfeiting entails unauthorized use or application of an existing trademark or brand to goods that were not intended to bear the brand. The Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement of 1994, a cornerstone in international trade legislation, provides an official definition:

Counterfeit trademark goods shall mean any goods, including packaging, bearing without authorization a trademark which is identical to the trademark validly registered in respect of such goods, or which cannot be distinguished in its essential aspects from such a trademark and which thereby infringes the rights of the owner of the trademark in question under the law of the country of importation.¹⁶

Table 1: Basic layout of IP protection

	PATENT	TRADEMARK	DESIGN	COPYRIGHT
What can be protected	Any process, machine, manufacture, or composition of matter, or any new and useful improvement thereof (U.S.)	Distinctive features (e.g., name, word, symbol) attached to a product or service	New and original visual aspects of a product or its packaging	Original artistic or literary work (i.e., books, recordings, and digital software)
Requirements for protection	1. Novelty 2. Non-obvious (U.S.); involves an inventive step (EU) 3. Useful (U.S.); susceptible to industrial application (EU)	Distinguishable features and intent to use in commerce	Aesthetic features, not be dictated solely by a technical function and must not be predated by a known overall identical or similar design	Must be expressed in a certain fixed form
Method of acquiring protection	Filing of a patent application to the local authority	Filing of a trademark registration application to the local authority	Filing of a centralized design application through the Hague Agreement	Authorship
Scope of protection	Inventor has the right to prevent any commercial use of invention not authorized by the inventor	Owner has the right to prevent others from capitalizing on the owner's reputation by using a confusingly similar mark	Owner has the right to prevent unauthorized copying by third parties, and to prohibit commercial use of products that incorporate or apply the design	Author can authorize or prohibit certain uses of the work (e.g., reproducing, distributing)
Term of protection	20 years from application filing date in a given economy	10 years pending declaration of use submission during the sixth year (U.S.); renewable indefinitely	15, 25, or 50 years (varies by economy)	Author's lifetime + 50–70 years
Main relevant international conventions	The Paris Convention (1883); the Patent Cooperation Treaty (1970); the Patent Law Treaty (2000); the WTO TRIPS Agreement (1994)	The Paris Convention (1883); the WTO TRIPS Agreement (1994); the Madrid Agreement (1891; 1979)	The Hague Agreement (1925), as amended by the WIPO Geneva Act (1999)	The Berne Convention (1886); the WIPO Copyright Treaty (1996); the WTO TRIPS Agreement (1994)

Sources: ICC, 2014; USPTO, 2014; WIPO, 2015; Paradise, P. R., 1999; analysis: Pugatch Consilium

Typically, the intention behind counterfeiting is to produce lower-cost versions of legitimate products that may nevertheless free-ride on the brand's established value and credibility in the marketplace. According to the Anti-Counterfeiting Group, counterfeiting involves "an imitation, usually one that is

made with the intent of fraudulently passing it off as genuine...[and] produced with the intent to take advantage of the established worth of the imitated product.”¹⁷ Indeed, a given brand or mark reflects a certain level of quality and content linked to the product or products bearing the mark that is exploited by counterfeiters.

The level of forgery or imitation can vary significantly in terms of the counterfeit product’s quality, from very poor, cheap imitations to products of close likeness to the original product.¹⁸ For example, footwear, jewelry, apparel, and fashion items can mimic distinguished features of the brand and its logo but the materials and assembly may be of lesser quality. Likewise, counterfeit wines may imitate the brand’s packaging and design but consist of an inferior-quality wine.¹⁹ Indeed, in 2014, the top consumer goods categories that attracted counterfeits in the United States were handbags and wallets, watches and jewelry, consumer electronics and parts, and apparel and fashion accessories.²⁰

Piracy differs from counterfeiting in the nature of the activity, as it consists of creating an unauthorized exact copy of an item—usually of digital media such as computer software, films, and computer games—that is protected by an intellectual property right such as copyright.²¹ The TRIPS Agreement defines pirated goods as

"Any goods which are copies made without the consent of the right holder or person duly authorized by the right holder in the country of production and which are made directly or indirectly from an article where the making of that copy would have constituted an infringement of a copyright or a related right under the law of the country of importation." ²²

1.2 | Counterfeiting: A health and safety threat

First and foremost, counterfeit goods jeopardize consumers, pose serious safety risks, and bear associated public health, economic, and societal costs. Specifically, the significant potential for dangerous ingredients or parts in counterfeit products may result in a range of adverse effects or outcomes. Take, for example, counterfeit industrial parts in the airline, aerospace, and defense industries, which have been linked to accidents and even plane crashes²³ and yet are estimated to number in the millions of units within the supply chain today.²⁴ A 2012 U.S. Senate committee report on the armed services found some 1,800 cases of suspected counterfeit parts, some of which were later installed on civilian aircraft.²⁵ In another example, the counterfeit car parts market has led to fatal accidents, for instance due to fake brake pads made of compressed grass, woodchips, or cardboard.²⁶

It is estimated that, each year, deaths resulting from counterfeit products among the G20 economies bear an economic cost of over \$18 billion U.S. dollars, with an additional \$125 million dollars spent on treating counterfeit product-related injuries.²⁷ The exact figure may be lower or higher,²⁸ but regardless, the health and safety threat posed by counterfeit products is real. It is particularly worrying that these parts appear to easily find their way into the supply chain of industries whose products are in daily use worldwide.

1.3 | The negative effect of counterfeiting on the economy

The economic damage sustained from counterfeit goods is significant. This damage affects consumers, trademark owners, companies, and sectors associated with the brand, including wholesalers and retailers, as well as the economy at large.²⁹ Naturally, consumers experience lower-quality and less-effective products. This in turn undermines a brand's integrity and can result in significant revenue losses. Specifically, IP owners sustain not only direct losses due to decreased market share, but also irreparable damage to the brand's reputation and dilution of the brand, as along with costs related to defending their intellectual property rights.³⁰ Indeed, direct losses of revenue due to counterfeit products are estimated at billions of dollars for each market segment and industry, and some companies spend as much as \$20 million dollars each year in attempts to fight counterfeiting of their products.³¹

Counterfeit products also have detrimental effects on economies. In recent testimony before the Subcommittee on Oversight and Investigations, the U.S. Government Accountability Office reported that counterfeiting had slowed the growth of the U.S. economy and had resulted in decreased innovation, loss of revenue and taxation, and higher unemployment rates.³² The Business Action to Stop Counterfeiting and Piracy initiative estimates that global counterfeiting results in the loss of 2.5 million jobs and over \$125 billion annually among the G20 economies.³³ It also estimates that weak IP protection, including trademark enforcement, in some economies discourages foreign direct investment, leading to additional losses of \$6.25 billion.³⁴

1.4 | The link between counterfeiting and organized crime and terrorism

Counterfeiting not only has serious direct consequences for consumers, industries, and economies, but also often supports other criminal elements, including organized crime groups around the world.³⁵ Counterfeiting represents relatively easy and fast funding for organized crime, yielding as much as a 900% profit margin.³⁶ Moreover, counterfeiting is increasingly linked to terrorist groups. Interpol and Federal Bureau of Investigation seizure records suggest that millions of U.S. dollars in proceeds from counterfeit goods (e.g., brake pads and cigarettes) have been destined for terrorist organizations, such as Hezbollah and Al-Qaeda.³⁷

1.5 | Fighting back: Anti-counterfeiting measures and strategies

The threat of counterfeiting is recognized by governments worldwide, resulting in varied anti-counterfeiting measures and strategies both locally and internationally. Indeed, the criminal nature of counterfeiting activity and the vast scope of its negative effect on consumers, companies, and economies have created the need for robust legislative frameworks that can operate on several levels. These include deterring domestic counterfeiting activity by imposing criminal liability, reducing import and smuggling of counterfeit products by strengthening customs authorities, and participating in international trade agreements and initiatives that harmonize global efforts against IP infringement.

While international conventions on IP date back centuries (see Table 1), one of the most recent and prominent examples of a comprehensive global effort to establish IP protection is the TRIPS Agreement of 1995, administered by the World Trade Organization (WTO) and effective for all 158 WTO members. The TRIPS Agreement established a new international legal architecture for IP by setting the minimum standards of protection that should be provided by each WTO member for intellectual property rights such as copyrights, industrial designs, patents, and trademarks. The TRIPS Agreement also provides specific IP enforcement procedures and civil remedies as well as special requirements related to border measures and criminal procedures.³⁸

However, with the substantial increase of counterfeiting following the entry into force of the TRIPS Agreement, governments became cognizant of the need to heighten certain aspects, particularly related to counterfeiting.³⁹ For example, in 2011–2012, the United States, Japan, the European Union (EU), and other economies signed the Anti-Counterfeiting Trade Agreement (ACTA), which sought to bolster enforcement provisions laid out in TRIPS by, for instance:

- 1) Redefining and expanding coverage of intellectual property rights;
- 2) Expanding what constitutes criminal copyright violations;
- 3) Applying tougher border measures;
- 4) Establishing the international ACTA committee to address IP enforcement; and
- 5) Demanding heavier penalties in the form of imprisonment and increased monetary fines to produce adequate deterrence.⁴⁰

However, following ACTA's failure to pass in the European Parliament and the European Commission's withdrawal of its request for a second vote in 2012, the ACTA would probably not enter into force.⁴¹

An additional international initiative is the Trans-Pacific Partnership (TPP) free trade agreement between 12 Pacific Rim economies, which was agreed to in October 2015 after several years of negotiations. Upon signature, ratification, and entry into force, the TPP will introduce certain provisions that extend IP protection, enforcement, and legal remedies laid out in ACTA, such as enhanced protective measures and harsher criminal penalties.⁴²

In addition to these international initiatives, governments across the globe have recently strengthened their legislative frameworks with respect to the growth of counterfeiting and new routes of circulation such as the Internet and social media. Table 2 lists some of the recent legislative actions taken by selected economies and regions.

Table 2: Recent anti-counterfeiting legislation in selected economies/regions

ECONOMY/REGION	RECENT LEGISLATION	KEY PROVISIONS
UNITED STATES	The Stop Counterfeiting in Manufactured Goods Act of 2006	<ul style="list-style-type: none"> • Requires courts to order the destruction of all counterfeit goods • Requires sellers to turn over their profits and equipment and to reimburse the rights holders • Prohibits shipment of counterfeit labels and packaging
	Signatory to the TPP	<ul style="list-style-type: none"> • Provisions included in this agreement
EU	New EU Customs Regulation (608/2013) of 2014	<ul style="list-style-type: none"> • Broadens scope of intellectual property rights • Extends definition of counterfeit products • Extends <i>ex officio</i> authority • Develops communication between EU and non-EU customs authorities
	Availability of the “Simplified Procedure” in all EU member states	<ul style="list-style-type: none"> • Requires destruction of suspected IP rights-infringing goods within 10 days, under certain requirements
JAPAN	Protection of Geographical Indications of 2015	<ul style="list-style-type: none"> • Establishes a system that enables direct protection of geographical indications
	Revision to the Customs Act	<ul style="list-style-type: none"> • Enables rights holders to seek import or export injunction through customs for up to a two-year term
	Signatory to the TPP	<ul style="list-style-type: none"> • Provisions included in this agreement
CANADA	Bill C-8 of 2014	<ul style="list-style-type: none"> • Provides <i>ex officio</i> powers to Canada Border Services Agency • Request for assistance filed by rights holders valid for 2 years • Amends the Trademark Act to add criminal offenses
	Amendments to the Copyrights Act in 2012	<ul style="list-style-type: none"> • Includes IP rights infringement by means of the Internet and other digital networks • Prohibits circumvention of technological protective measures • Sets statutory damages of \$500–\$20,000 Canadian dollars for commercial infringement
	Signatory to the TPP	<ul style="list-style-type: none"> • Provisions laid in this agreement

Sources: World Trademark Review, 2014; analysis: Pugatch Consilium

While various measures and initiatives aimed at combating counterfeiting are ongoing, the available knowledge about the scope and impact of counterfeiting makes it all the more important to better understand and quantify rates of counterfeiting globally and by economy in order to more effectively target strategic platforms for counterfeiting activities today. The following section examines various impetuses behind the changing counterfeiting landscape that underscore both the potential for even greater risks and costs globally and the importance of better honing current anti-counterfeiting tactics.

2. Measuring Trade-Related Physical Counterfeiting: Methodological Gaps and Changes to the Global Counterfeiting Landscape

2.1 | Measuring the immeasurable: The challenges in estimating the scope of illicit activity

Although the threat of counterfeiting is recognized by governments worldwide and a broad spectrum of global estimates of the rate of counterfeiting exists—ranging from \$200 billion to over \$1.7 trillion—the actual scope is not fully known. In some respects, this is an inherent challenge given the illicit nature of counterfeiting and other black market activities. It is also a result of varying approaches taken by police and customs authorities against suspected counterfeit goods. In other words, even where authorities manage to identify counterfeit products, the available data on the volume and value of these products depend on the extent and frequency with which they actually seize the goods as well as whether and in what manner they document and report data on those goods. As a result, while customs authorities seize billions of dollars worth of counterfeit goods each year, these may well represent only a small fraction of the actual number of counterfeit goods in the market. In addition, reliable data are scarce because industries are generally reluctant to provide figures of actual losses from counterfeiting in order to avoid damaging consumer confidence.⁴³

The scarcity of data has led to the development of different methodologies seeking to estimate the rate of physical counterfeiting, such as extrapolation of seizure data, surveys of supply and demand that track consumer behavior, and use of economic multipliers to assess the overall effect on the economy.⁴⁴ However, in general, these approaches still have some limitations.⁴⁵ For example, the rate at which consumers will be willing to purchase the genuine product over the counterfeit—the substitution rate—is conditional and sector sensitive, as well as the extent of deception that consumers face. Additionally, the method used for calculating the value of counterfeit goods heavily affects the general estimations of revenue losses.⁴⁶

Over the years, several methods were utilized in order to meet these challenges, including the extrapolation of customs authorities' seizure data, extensive supply-and-demand surveys, and use of econometric multipliers.⁴⁷

In its first study from 2008—*The Economic Impact of Counterfeiting and Piracy*—the OECD embedded seizure data, customs and industry survey data and international trade data into an econometric model, known as the GTRIC-e, that provided an estimation of the magnitude of physical counterfeiting both internationally and within each economy. In its recently published study of 2016—*Trade in Counterfeit and Pirated Goods: Mapping the Economic Impact*—the OECD now estimates that global trade-related counterfeiting accounts for 2.5% of world trade, or 461 billion USD.¹

¹ OECD/EUIPO, (2016). *Trade in Counterfeit and Pirated Goods: Mapping the Economic Impact*, OECD Publishing, Paris.

A key finding from these two OECD studies is that global counterfeiting has grown both organically with a growth rate of 0.6% (of its estimated share of world trade), and, since world trade has in itself increased constantly since 2009, also grown in its overall dollar figure. The OECD's GTRIC-e model is still the best available estimate of trade-related globally physical counterfeiting and can be utilized as a basis for creating a more up-to-date measure of global physical counterfeiting.

2.2 | Key trends in global physical trade-related counterfeiting: Growth in world trade and the rise of new leaders

On top of these challenges and gaps surrounding the existing estimates of physical counterfeiting, it is important to note the way in which the global counterfeiting landscape has changed since the creation of these estimates—and in turn, how this should be incorporated into any up-to-date measure of counterfeiting.

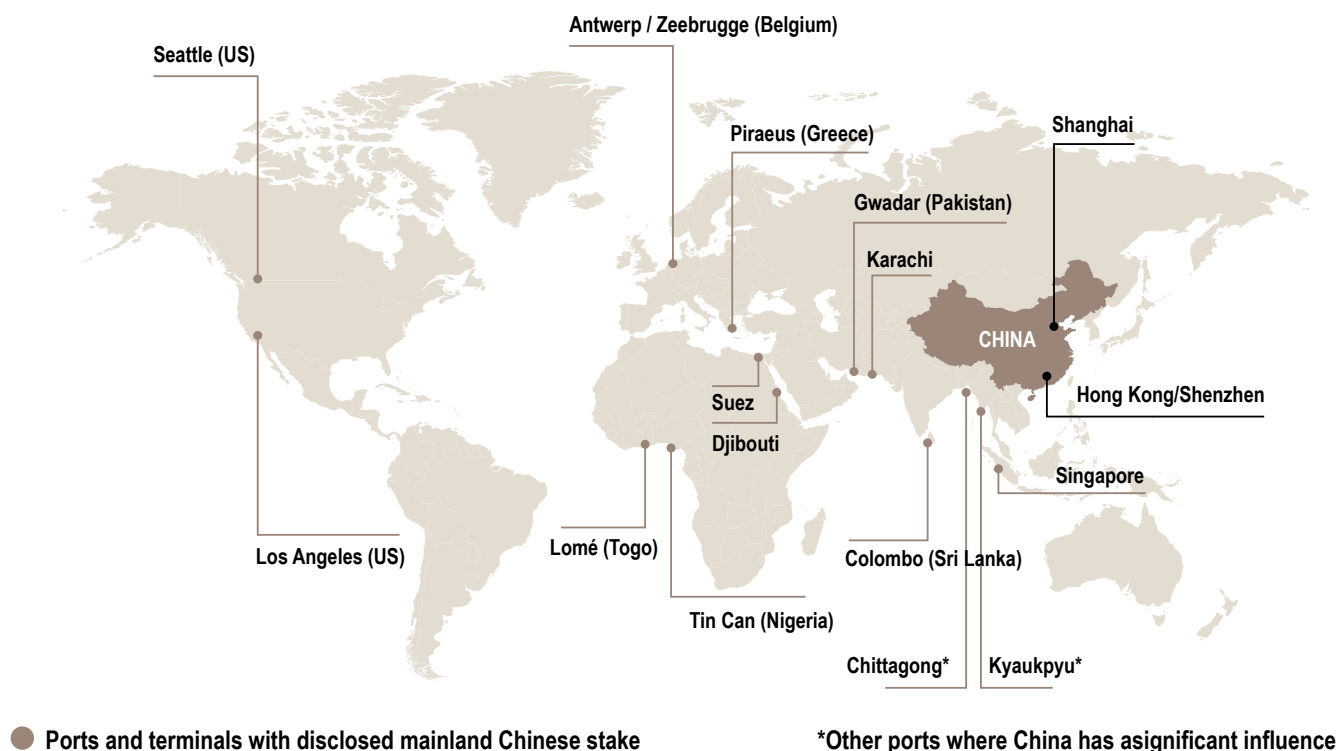
First, the participants and channels of world trade, and in parallel, of counterfeiting have shifted considerably over the past 15 years, from developed economies to developing and emerging markets. Indeed, income per capita rose significantly in developing economies, from 1.5% during the 1990s to 4.7% annually throughout 2000–2010, while developed economies' growth slowed from an annual average of 2.8% to 0.9% during the 2000s. Concomitantly, developing economies' share of world trade has increased to some 50%, an increase of more than 10% since the 2000s.⁴⁹ Indeed, China's exports have increased by 6–8% annually in recent years.⁵⁰ Importantly, many of these economies also display relatively permissive legal and enforcement environments regarding IP infringement and counterfeiting.⁵¹ These trends are crucial for estimating the magnitude of counterfeiting, since developing economies are the primary source of counterfeit product manufacturing.⁵²

Second, the volume of participants in and channels of world trade has grown. As developing economies' share of world trade has increased, so has the trade among them, climbing from some 6% of world trade in 1988 to nearly 25% of world trade in 2013.⁵³ This means that counterfeit products have steadily increased their prominence within more markets, thus facilitating their global reach.

Nowhere do these trends coalesce more than in China and Hong Kong. Hong Kong's prominence in the field of physical counterfeiting is a result of its proximity to China—the Guangdong province in particular—which enables easy trafficking of goods to Hong Kong's busy ports.⁵⁴ Today, it is estimated that China is responsible for about 10% of global trade in goods, as it is home to seven of the ten busiest ports in the world, including the port of Shanghai, the world's largest.⁵⁵

Additionally, China is increasing its international reach by leasing and constructing ports around the world—the Chinese government's "21st-Century Maritime Silk Road" program of developing ports in Southeast Asia, the Indian Ocean, and the Mediterranean being the most recent prominent example.⁵⁶ Figure 1 delineates China's facilitation of its global reach.

Figure 1: China's hold in key ports around the globe and international shipping routes

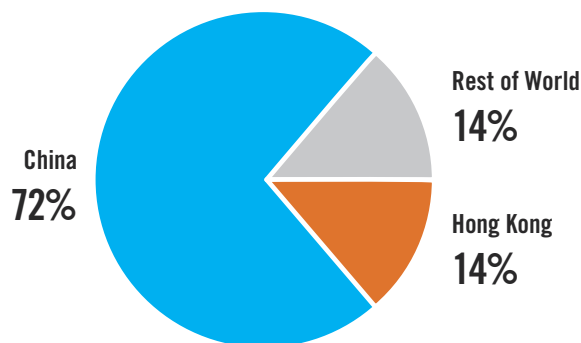


Source: Office for Harmonization in the Internal Market, Europol, 2015

Despite having become one of the leading players in world trade, China faces significant challenges in the enforcement of intellectual property rights. Even though improvements have occurred in recent years, China's IP environment remains challenging and criminal prosecution against counterfeiters in many industry sectors is inconsistent.⁵⁷

Indeed, when looking at seizure data from major economies and international trade organizations, it is clear that today China is the world leader in producing and exporting counterfeit goods. Figure 2 and Table 3 amalgamate seizure data from U.S., EU, and Japanese customs authorities from 2010 to 2014.

Figure 2: China and Hong Kong's aggregated share (%) of seized counterfeit goods by U.S., EU, and Japanese customs authorities, 2010–2014 ³



Sources: U.S. Customs and Border Protection; European Commission Taxation and Customs Union; Japanese customs; analysis: Pugatch Consilium

Table 3: Top five economies of origin by estimated value of seized counterfeit products by U.S., EU, and Japanese customs authorities, 2010–2014 (average)

UNITED STATES		EU		JAPAN	
Economy of origin	Estimated value	Economy of origin	Estimated value	Economy of origin	Estimated value
China	\$953.2 million	China	€467.5 million	China	\$100 million
Hong Kong	\$301.4 million	Hong Kong	€70.2 million	Hong Kong	\$14.6 million
India	\$11.1 million	Turkey	€50.6 million	South Korea	\$6.2 million
Canada	\$8.3 million	Greece	€29.9 million	Philippines	\$3 million
Singapore	\$5.6 million	Panama	€18.7 million	Thailand	\$1.2 million

Sources: U.S. Customs and Border Protection; European Commission Taxation and Customs Union; Japanese customs;⁵⁸ analysis: Pugatch Consilium

The above figure and table indicate that China and Hong Kong are together responsible for some 86% of the import of counterfeit goods into the world's three largest markets (with a shared market value of nearly \$2 trillion each year).

³ Seizure data were collected from annual reports published between 2010 and 2014 (inclusive) by the customs authorities in each economy and region (2010–2013 by EU customs); together these economies and regions represent the world's three largest markets for counterfeit goods. China and Hong Kong's respective share for each year as reported by each of the three customs authorities was aggregated and averaged in order to control for random variations and provide a more precise figure.

Indeed, China's share as economy of origin of seized counterfeit goods by the U.S. Customs and Border Protection (CBP) increased from 12.5% in 1995 to 73.6% in 2005. Additionally, China's share of counterfeit goods seized by EU customs and Japanese customs increased from 55% and 53.9% in 2008 to over 72% and 75.8% in 2013, respectively.⁵⁹ For comparison, the third-largest counterfeit goods exporter to the United States—India—holds a share of only 0.84% in average of annual seizures by the CBP. As aforementioned, these figures are also likely underestimates of the actual share and level of exporting by China and Hong Kong, since counterfeiters often use sophisticated means of smuggling their counterfeit products through several ports, thus obscuring the products' true origin.

However, counterfeiting still takes place in many other economies, particularly emerging economies that are both experiencing significant increases in exports and providing similarly permissive conditions for counterfeiting. The next section discusses a new model that seeks to break down and identify rates of counterfeiting in a wider number of economies as well as to incorporate the overarching trends affecting world trade and global counterfeiting today.

3. Developing and Expanding Contemporary Measures of Physical Counterfeiting

The remainder of this report aims to provide a breakdown of the share of the global rate of physical counterfeiting (as both a percentage and with a USD figure) for the 38 economies included in the 2016 U.S. Chamber of Commerce's GIPC International IP Index (4th Ed.). This section outlines in detail the composition and creation of a new model for such an estimate. It presents an empirical model for breaking down the global figure by economy (including isolating China and Hong Kong) that accounts for share of world trade and likelihood of counterfeiting activity based on the legal and enforcement environment.

This study examines a sample of 38 economies in accordance with the U.S. Chamber of Commerce International IP Index (in its previously written 4th edition), a global benchmark of national IP environments, whose fifth category scores—measuring enforcement of intellectual property rights—constitute one of the three factors used in this study to establish the model for estimating individual economies' share in global physical counterfeiting. This sample is composed of a mix of developed, developing, and emerging markets, which together account for more than 85% of world trade. Table 4 displays these economies by the World Bank Economy ranking.

Table 4: The economies sampled, by the World Bank Economy Group ⁴

LOWER-MIDDLE-INCOME ECONOMIES	UPPER-MIDDLE-INCOME ECONOMIES	HIGH-INCOME ECONOMIES	HIGH-INCOME OECD MEMBERS
India	Algeria	Brunei Darussalam	Australia
Indonesia	Argentina	Russia	Canada
Nigeria	Brazil	Singapore	Chile
Ukraine	China	Taiwan	France
Vietnam	Colombia	UAE	Germany
	Ecuador	Venezuela	Israel
	Malaysia		Italy
	Mexico		Japan
	Peru		New Zealand
	South Africa		Poland
	Thailand		South Korea
	Turkey		Sweden
			Switzerland
			United Kingdom
			United States

Sources: GIPC, 2016; World Bank, 2015

3.1 | Establishing an up-to-date estimate of global counterfeiting as a share of world trade

The OECD's GTRIC-e estimate of global physical trade-related counterfeiting remains one of the best and methodologically most rigorous estimates of physical trade-related counterfeiting available. As such, it represents a good starting point for establishing a current estimate of the rate of physical counterfeiting on a global scale. According to the OECD's most recent estimate, physical counterfeiting accounted for 2.5% of world trade in merchandised goods in 2013, or 461 billion USD.⁶⁰

3.2 | Modeling current economy-specific counterfeiting rates

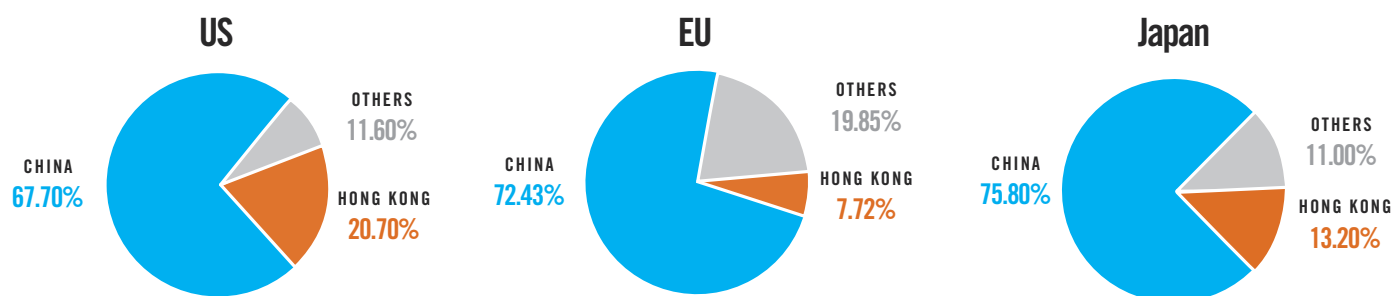
A remaining need and challenge is to understand how much of the global share of physical counterfeiting occurs in a given economy. As discussed, according to existing hard data, including rates of customs seizures, China and Hong Kong dominate in terms of economies of origin. Moreover, in most instances,

⁴ Note that the World Bank does not include Taiwan in its classification or its databank. However, based on current per capita income levels, Taiwan is classified as a high-income economy. World Bank. (2014). "Country and Lending Groups," <http://data.worldbank.org/about/country-and-lending-groups>.

available data do not go beyond the remaining 5–10 leading economies of origin. Hence, it is difficult to quantify the share of global physical counterfeiting that should be assigned to all other economies worldwide. This section develops a model for first isolating and extracting China and Hong Kong's share of the global estimate of physical counterfeiting presented in this section and then dividing the remaining "counterfeiting pie" into individual economies, with a focus on 38 leading economies.

The rates of seizures of counterfeits from the customs authorities in the world's three largest markets provide a proxy for the relative share of China and Hong Kong in global physical counterfeiting. As seen in Figure 3, among these three markets between 2010 and 2014, China and Hong Kong accounted for an average of 86% of counterfeit goods seized by customs authorities. Extrapolating this percentage to the estimate of global physical counterfeiting identified in this section yields a value of \$396.46 billion that may be attributed to China and Hong Kong as source markets for global counterfeiting. On this basis, the rest of the world accounts for \$64.54 billion.

Figure 3: China and Hong Kong's share of seized counterfeit products by U.S., EU, and Japan's customs authorities, 2010–2014 (average)



Sources: U.S. Customs and Border Protection; European Commission Taxation and Customs Union; Japanese customs;⁶² analysis: Pugatch Consilium

In order to further break down physical counterfeiting rates by economy, as mentioned, this study focuses on 38 economies that together represent over 85% of world trade and isolates these economies as a group from the global counterfeiting estimate based on their share of world trade. Subtracting China from this sample, the remaining 37 economies account for an estimated 62.55% of world trade. Hence, of the remaining \$64.54 billion (once China and Hong Kong's share is removed), the aggregated share of the sample economies is \$40.37 billion.

The remaining challenge concerns how to divide the \$40.37 billion worth of physical counterfeiting by economy in an empirical manner. Assigning each economy's share merely based on its portion of world GDP or world trade would not accurately reflect known drivers of counterfeiting present (or absent) in each economy, such as the legal environment and recognition of the problem by authorities on the ground. As such, this study uses a proprietary metric that applies three equally weighted factors in order to provide a holistic take on the propensity for counterfeiting in the selected economies.

As the existing literature has identified, numerous factors constitute supply-and-demand drivers that play some part in determining markets' propensity to produce and consume counterfeits.⁶³ However, in order to gauge economies' involvement in global physical counterfeiting, two main factors are of particular importance and may be used: the level of intellectual property rights enforcement and the rate of corruption within a given economy.

Incorporating factors for the propensity for counterfeiting: The level of intellectual property rights enforcement and the rate of corruption

The level of protection of IP in a given economy is perhaps the most crucial criterion to look at with respect to measuring physical counterfeiting in a given economy. As counterfeiting by definition infringes intellectual property rights, an environment that provides sufficient IP protection in the form of a robust legislative framework and effective policing and border measures naturally deters such activity. The existence of civil and procedural remedies, mechanisms for determining the amount of damages generated by infringement, criminal standards including minimum imprisonment and minimum fines, and *ex officio* authority for police and customs officials to seize suspected counterfeit goods are among factors identified as effective deterrents of counterfeiting.⁶⁴ Indeed, looking at the seizure data from reporting customs authorities presented in section 3.1, economies with the highest rates of seizures originating in their markets also possess some of the weakest IP environments worldwide.

In this light, the metric developed here includes two measures of the level of IP protection in a given economy. First, it utilizes the 2016 U.S. Chamber of Commerce's International IP Index, a global benchmark of national IP environments. Specifically, the metric relies on the scores within the U.S. Chamber of Commerce International IP Index's fifth category, which measures enforcement of intellectual property rights. The unique structure of this category is of particular relevance to the measurement of economies' involvement in physical counterfeiting: First, it captures frameworks and barriers to counterfeiting, including those described above, that have been strongly linked with physical counterfeiting. These include:

- The existence of civil and procedural remedies, including injunctions, damages for injuries, and destruction of infringing and counterfeit goods, as well as their effective application;
- The existence of pre-established damages and/or mechanisms for determining the amount of damages generated by infringement;
- Criminal standards (including minimum imprisonment and minimum fines) in place and their application; and
- Effective border measures (measured by the extent to which goods in transit suspected of infringement may be detained or suspended, as well as the existence of *ex officio* authority).

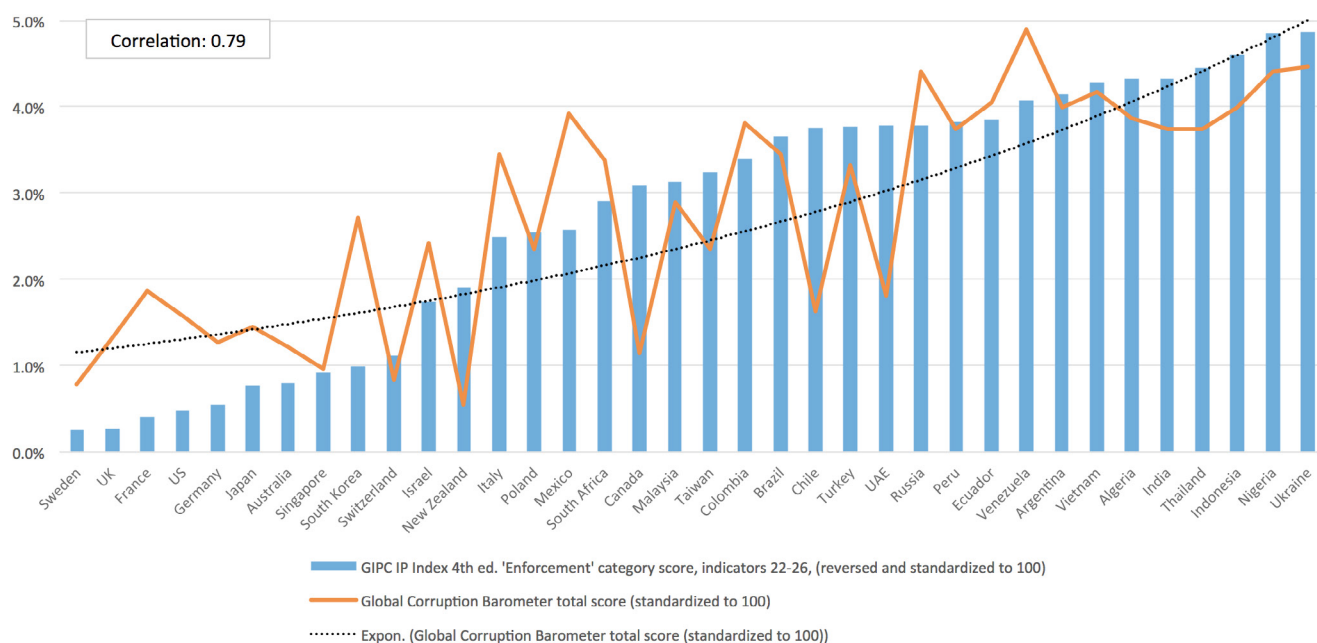
Second, in this category, the U.S. Chamber of Commerce International IP Index includes an additional indicator that is intended to reflect a given economy's physical counterfeiting rate, which in fact is

based on the economy's rank within the OECD's GTRIC-e benchmark discussed in detail previously. On top of the global counterfeiting estimate, the GTRIC-e also provides a ranking of over 100 economies in terms of their relative share of global counterfeiting, with China in the first position. The U.S. Chamber of Commerce International IP Index incorporates this ranking, with economies at the top of the ranking assigned relatively low scores and economies at the bottom assigned relatively high scores.

Taken together, these two factors—or economies' score in the U.S. Chamber of Commerce International IP Index with respect to the GTRIC-e ranking and their aggregated scores for the remainder of the indicators within the enforcement category—provide a measure of a given economy's IP environment, in terms of both the legal environment as well as the actual level of protection provided on the ground. In order to incorporate these two factors into the metric in this study, and to account for the fact that a higher score in the U.S. Chamber of Commerce International IP Index reflects a lower propensity for counterfeiting and vice versa, the scores from the Index for these two factors (a higher score of, say, 0.75 becomes a score of 0.25 in this study's metric). These scores are then standardized to 100.

The third factor employed in this study's metric is the rate of corruption within an economy, as measured by Transparency International's Global Corruption Barometer.⁶⁵ This is based on the assumption that a strong relationship exists between corruption and counterfeiting—that is, authorities in economies that struggle with corruption tend to also overlook or place less emphasis on combating criminal activities, including counterfeiting. Indeed, the level of IP protection and the rate of corruption show a strong positive correlation among the sampled economies, as is evident in Figure 5.

Figure 4: Weak IP protection strongly correlates to high rates of corruption



Sources: U.S. Chamber of Commerce, Transparency International, 2015; analysis: Pugatch Consilium

The scores for each of the above factors are then averaged and applied to each economy to derive its share of the global counterfeiting estimate (discussed below). The Statistical Annex to this report provides a breakdown of the sampled economies' scores for each of the above factors.

Results of the model: Identifying economies' share of the global estimate of physical counterfeiting

Based on the sampled economies' relative propensity for counterfeiting as outlined above, each economy was assigned a share of the global counterfeiting estimate in both USD terms and as a percentage of the total. This estimated breakdown was derived by applying each economy's total score (converted to a percentage) in the metric to the total share of global physical counterfeiting for the sampled economies \$40.37 billion dollars. It is important to note that this estimate refers to global distribution of counterfeit goods, and, like the OECD's analysis, does not account for counterfeit goods that are produced and consumed locally. Table 5 summarizes the results of the metric.

Table 5: Selected economies' share of global physical counterfeiting

Rank	Economy	Share (in USD) of global physical counterfeiting	Percentage of the sampled economies' share of global physical counterfeiting	Percentage of total global physical counterfeiting figure
1	China	\$285,451,200,000	-	72.00%
2	Ukraine	\$1,980,812,670	4.91%	0.43%
3	India	\$1,772,500,223	4.39%	0.38%
4	Russia	\$1,727,389,244	4.28%	0.37%
5	Turkey	\$1,720,857,842	4.26%	0.37%
6	Argentina	\$1,714,143,665	4.25%	0.37%
7	Thailand	\$1,679,629,489	4.16%	0.36%
8	Indonesia	\$1,603,262,413	3.97%	0.35%
9	Vietnam	\$1,532,898,029	3.80%	0.33%
10	Peru	\$1,518,685,756	3.76%	0.33%
11	Nigeria	\$1,445,866,781	3.58%	0.31%
12	Venezuela	\$1,388,948,435	3.44%	0.30%
13	UAE	\$1,366,724,905	3.39%	0.30%
14	Ecuador	\$1,363,888,844	3.38%	0.30%
15	Malaysia	\$1,355,385,035	3.36%	0.29%
16	South Africa	\$1,299,689,384	3.22%	0.28%
17	Italy	\$1,256,582,207	3.11%	0.27%
18	Colombia	\$1,207,409,361	2.99%	0.26%
19	Chile	\$1,205,977,425	2.99%	0.26%
20	Algeria	\$1,179,263,195	2.92%	0.26%
21	South Korea	\$1,151,431,914	2.85%	0.25%

(CONT'D)

Rank	Economy	Share (in USD) of global physical counterfeiting	Percentage of the sampled economies' share of global physical counterfeiting	Percentage of total global physical counterfeiting figure
22	Brazil	\$1,079,153,781	2.67%	0.23%
23	Poland	\$1,035,331,518	2.56%	0.22%
24	Mexico	\$1,022,712,623	2.53%	0.22%
25	US	\$871,697,061	2.16%	0.19%
26	Singapore	\$858,938,548	2.13%	0.19%
27	Canada	\$804,024,681	1.99%	0.17%
28	Taiwan	\$752,993,926	1.87%	0.16%
29	Israel	\$712,203,068	1.76%	0.15%
30	Switzerland	\$611,274,133	1.51%	0.13%
31	UK	\$510,429,274	1.26%	0.11%
32	Sweden	\$502,401,864	1.24%	0.11%
33	Japan	\$494,802,934	1.23%	0.11%
34	Germany	\$421,093,349	1.04%	0.09%
35	France	\$416,062,532	1.03%	0.09%
36	Australia	\$398,642,539	0.99%	0.09%
37	New Zealand	\$344,759,134	0.85%	0.07%
38	Brunei Darussalam	\$61,902,219	0.15%	0.01%

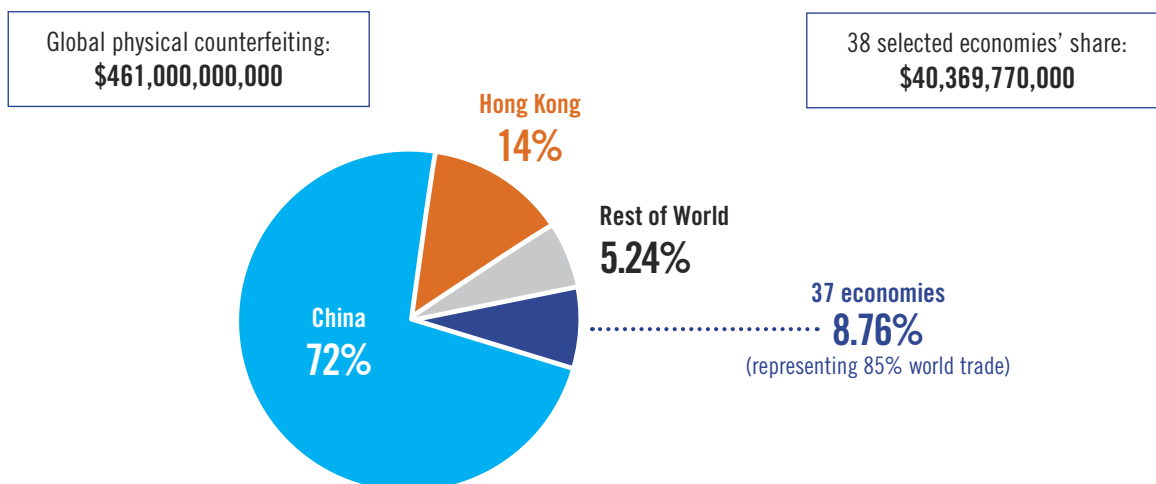
Figure 5: Selected economies' relative share in global physical counterfeiting

Figure 5 exhibits the division of the global “physical counterfeiting pie,” highlighting the breakdown of the 38 selected economies’ relative shares as well as the top 10 economies in terms of estimated magnitude of physical counterfeiting.

As Figure 5 suggests, nearly half of the sampled economies' share of \$40.37 billion worth of counterfeit goods is produced by 10 economies, mostly from Central and East Asia. East Asian counterfeiters often rely on free trade zones—such as those existing in China, India, Indonesia, and Malaysia—where lack of effective enforcement enables repackaging and relabeling as well as the adulteration of shipping documents in order to disguise the true manufacturer's identity and origin.⁶⁶

Ukraine suffers from rampant counterfeiting, as a wide number of counterfeit products are openly sold, for example, in Ukraine's Seventh Kilometer Market—regarded as one of Europe's largest markets for counterfeit and pirated products—without any publicly noted enforcement activity concentrated on the market. It is estimated that at least 35% of well-known foreign brands in Ukraine were being counterfeited in 2014.⁶⁷ Similarly, Turkey's counterfeit goods market, as measured by the number of legal suits filed against infringing products, is ranked second in the world, after China.⁶⁸

Naturally, this analysis has its limitations. Additional factors also drive counterfeiting, including other supply-and-demand drivers and market characteristics. Moreover, as in any measure of illicit activities, it is impossible to fully capture the scope, both globally and domestically. Nevertheless, the metric has tried to capture key drivers among relevant and robust measures existing today, and the results provide a relatively holistic and, importantly, up-to-date picture of a number of key economies' share of global physical counterfeiting.

4. Conclusions and Key Findings

Physical counterfeiting continues to pose a serious, ever-growing threat to economies worldwide. Ranging from toys containing forbidden and hazardous materials, to poor-quality automotive brake pads and helicopter engine parts, to the loss of thousands of jobs and economic stagnation, the threat of physical counterfeiting is real, its growth scale is alarming, and the accumulation of evidence indicating physical counterfeiting as a lucrative funding source for organized crime and global terrorism is frightening.

In this light, this study:

- 1) Establishes a division of the global physical counterfeiting percentage with respect to the anomaly of China and Hong Kong's prominence; and
- 2) Evaluates the propensity/likelihood of physical trade-related counterfeiting in a sample of 38 economies by creating a proprietary metric of three equally weighted factors using several datasets, and assign each economy with a percentage and monetary value share of global physical counterfeiting.

Key findings:

1. China alone is estimated to be the source for more than 70% of global physical trade-related counterfeiting, amounting to more than 285 billion USD. Physical counterfeiting accounts for the equivalent of 12.5% of China's exports of goods and over 1.5% of its GDP. China and Hong Kong together are estimated as the source for 86% of global physical counterfeiting, which translates into 396.5 billion USD worth of counterfeit goods each year.
2. Despite China and Hong Kong's dominant share of global counterfeiting, a considerable amount of physical counterfeiting activity as share of world trade can be attributed to other economies as well. Indeed, the level of counterfeiting activity attributed to some economies is substantial and bears significant economic and public health implications, both locally and internationally.
3. In addition to the modelled estimates of rates of global physical counterfeiting and percentage attributed to each economy, the study also provides an analysis of the value of seized counterfeit goods as reported by the 38 economies sampled and the World Customs Organization. The value of counterfeit goods seized and reported by customs authorities from within our sample of 38 economies (5.2 billion USD) represents only 1.2% of the estimate of global physical counterfeiting of 461 billion USD. This suggests that though customs authorities' activities yield results and their efforts are highly laudable, the extent of their successes still represents "a drop in an ocean". This does not mean to say that economies should not continue to step up efforts to combat counterfeiting. Recent actions taken by economies include enhancing customs authorities' scope of action, strengthening IP protection, introducing targeted measures aimed at deterring counterfeiting, and joining international trade and enforcement initiatives. Taken together, these steps are expected to increase economies' ability to limit counterfeiting activities both domestically and globally over time.
4. Our analysis of seizure data from customs authorities shows that the dearth of seizures data is acute. Of the 38 economies examined in this study, only a third of the customs authorities publish some data. Moreover, only a small proportion of these publish reliable, consistent and detailed seizure statistics. Additionally, the data is often focused on intermittent seizures of varying scope and so does not necessarily reflect systematic efforts against counterfeiting.

Appendix A: Identifying a hard, real-world "floor" for the magnitude of global counterfeiting

As discussed in section 2 of this report, there are various ways of estimating the size of the global counterfeiting market. One can look at domestic counterfeiting activities or, alternatively, focus on trade of counterfeit goods as a proxy for counterfeiting rates overall. In relation to the latter, counterfeiting rates can be measured in terms of both volume and value. They can also be based on actual trade of counterfeit goods or as an extrapolation based on economies' share of world trade.

One manner of capturing the value of seized counterfeit goods on a global scale is through gathering and amalgamating actual seizure data from customs authorities in each economy into a global figure. Although, as will be discussed, the resulting figure represents only the minimum value of global counterfeiting, it nevertheless establishes a kind of real-world global “counterfeiting floor,” which is still strikingly large.

This exercise, serving as a supplementary analysis to this report, involved accumulating and analyzing seizure statistics from a sample of 38 economies’ customs authorities over a five-year span, from 2010 to 2014. Where available, this exercise used a rolling three-year to five-year average of published seizure goods’ value. This was done in order to adjust for the inherent randomness of published customs data (i.e., seizure rates vary significantly by year), thus providing as accurate an estimate as possible. Historical USD exchange rates were used to adjust the figures to a uniform currency. The exercise also included international operations as reflected by publicly available WCO seizure data. Given that the WCO data also amalgamate seizure statistics from reporting economies (United States, EU, and Japan) and to try to avoid double-counting of these data, only a portion (54%) of the WCO seizure statistics were accounted for (representing the total figure less the United States’, EU’s, and Japan’s share of world exports).

Still, the accumulation of seizure data has its limitations. Only 13 customs authorities out of 38 sampled economies officially publish some form of seizure data. In addition, the quality and extent of the data vary significantly among economies. For instance, stringent customs authorities, such as in the United States, EU, and Japan, publish annual reports that include fully detailed and consistent seizure statistics and a breakdown of economies of origin. Other customs authorities may not meet one or more of these criteria, thus encumbering the data aggregation and analysis. Moreover, calculation methods often differ among customs authorities and may be undefined. For example, EU customs estimates the total value of seized goods by their retail value, while the CBP uses the manufacturer’s suggested retail price.

Table 6: Total value (in million USD) of seized counterfeit goods by U.S., EU, and Japanese customs authorities and the WCO, 2010–2014 ⁷

	2010	2011	2012	2013	2014
United States	\$1,413	\$1,110.5	\$1,262.2	\$1,743.5	\$1,226.2
EU	\$1,435	\$1,646	\$1,184	\$1,057	NA
Japan	\$87.6	\$121	\$163	\$108.5	\$150.2
WCO	NA	\$1,852.5	\$1,471.6	\$1,013.5	NA

Sources: U.S. Customs and Border Protection; European Commission Taxation and Customs Union; Japanese customs; WCO; analysis: Pugatch Consilium

⁷ Figures of the European Commission Taxation and Customs Union and of Japanese customs were first converted to USD in accordance with the historic annual exchange rate for each year (i.e., 2010 figures were converted from euro/Japanese yen to USD using the annual exchange rate for 2010), using OANDA.com services, <http://www.oanda.com/currency/historical-rates/>.

Having said this, the most comprehensive, consistent, and reliable seizure data are provided by U.S., EU, and Japanese customs authorities. The total value of seized counterfeit goods by these authorities during 2010–2014 is provided in Table 6, along with the WCO seizure value.

The scope of counterfeiting as reflected in the three largest markets alone is significant, with some \$3 billion worth of counterfeit goods seized each year in the United States, EU, and Japan. Seizure data collected from additional reporting customs authorities of the 38 sampled economies, outlined in Table 7, enable an even more complete perspective on the global value of annual seizures: reflected in known and documented customs seizures alone, global trade-related counterfeiting can be valued at a minimum of \$5.2 billion.

Table 7: Total value (in USD) of seized counterfeit goods by reporting economy

REPORTING ECONOMY/ ORGANIZATION	VALUE OF SEIZED GOODS	CALCULATION
WCO	\$780,781,018	Figure reflects 54% of the average of the total value of seized goods, 2011–2013
United States	\$1,351,067,064	Average of the total value of seized goods, 2012–2014
EU	\$1,330,900,135	Average of the total value of seized goods, 2010–2013
Turkey	\$699,300,000	2013 figure
Brazil	\$286,694,398	Average of the total value of seized goods, 2011–2014
Peru	\$199,200,000	2013 figure
Japan	\$166,866,667	Average of the total value of seized goods, 2012–2014
Thailand	\$118,474,351	Average of the total value of seized goods, 2010–2014
Colombia	\$70,839,000	2015 figure
South Africa	\$66,906,000	FY 2012–2013 figure
Russia	\$43,200,000	Average of the total value of seized goods, 2013–2014
Australia	\$43,000,000	FY 2013–2014 figure
Canada	\$43,302,763	Average of the total value of seized goods, 2010–2012
Mexico	\$4,410,000	2013 figure
Total	\$5,204,941,396	

Though it provides a hard figure that reflects actual trade in counterfeits, the global value identified through this exercise mainly represents a minimum or floor that does not adequately capture the full scope of global trade-related counterfeiting. Given existing estimates of global counterfeiting mentioned in section 2 of the report—as well as the known growth in world trade and, in parallel, of counterfeiting—this study relies on (and updates) an estimate of counterfeiting rates that is relative to economies' share of world trade.

Statistical Annex

Table 8: Level of intellectual property rights enforcement factor score (reversed and standardized to 100) per the U.S. Chamber IP Index, 4th Edition

ECONOMY	ENFORCEMENT CATEGORY SCORE (INDICATORS 22–26)	FINAL SCORE (STANDARDIZED TO 100)
Algeria	3.85	4.33%
Argentina	3.69	4.15%
Australia	0.71	0.80%
Brazil	3.25	3.66%
Brunei Darussalam	NA	0.00%
Canada	2.75	3.09%
Chile	3.34	3.76%
Colombia	3.02	3.40%
Ecuador	3.43	3.86%
France	0.36	0.40%
Germany	0.49	0.55%
India	3.85	4.33%
Indonesia	4.09	4.60%
Israel	1.55	1.74%
Italy	2.22	2.50%
Japan	0.69	0.78%
Malaysia	2.79	3.14%
Mexico	2.29	2.58%
New Zealand	1.70	1.91%

ECONOMY	ENFORCEMENT CATEGORY SCORE (INDICATORS 22–26)	FINAL SCORE (STANDARDIZED TO 100)
Nigeria	4.31	4.85%
Peru	3.40	3.82%
Poland	2.26	2.54%
Russia	3.37	3.79%
Singapore	0.82	0.92%
South Africa	2.59	2.91%
South Korea	0.88	0.99%
Sweden	0.23	0.26%
Switzerland	0.99	1.11%
Taiwan	2.88	3.24%
Thailand	3.96	4.45%
Turkey	3.35	3.77%
UAE	3.36	3.78%
United Kingdom	0.24	0.27%
Ukraine	4.33	4.87%
United States	0.43	0.48%
Venezuela	3.63	4.08%
Vietnam	3.81	4.29%

Sources: U.S. Chamber of Commerce International IP Index, 4th Edition; analysis: Pugatch Consilium

Table 9: The GTRIC-e factor score (reversed and standardized to 100)

ECONOMY	GTRIC-E RANK	FINAL SCORE (STANDARDIZED TO 100)
Algeria	153	9.47
Argentina	39	76.92
Australia	142	15.98
Brazil	143	15.38
Brunei Darussalam	156	7.69
Canada	120	28.99
Chile	68	59.76
Colombia	119	29.59
Ecuador	106	37.28
France	146	13.61
Germany	132	21.89
India	25	85.21
Indonesia	75	55.62
Israel	137	18.93
Italy	73	56.80
Japan	128	24.26
Malaysia	55	67.46
Mexico	138	18.34

ECONOMY	GTRIC-E RANK	FINAL SCORE (STANDARDIZED TO 100)
New Zealand	166	1.78
Nigeria	127	24.85
Peru	64	62.13
Poland	90	46.75
Russia	38	77.51
Singapore	42	75.15
South Africa	74	56.21
South Korea	32	81.07
Sweden	93	44.97
Switzerland	96	43.20
Thailand	48	71.60
Turkey	8	95.27
UAE	40	76.33
UK	107	36.69
Ukraine	17	89.94
US	44	73.96
Venezuela	131	22.49
Vietnam	86	49.11

Sources: U.S. Chamber of Commerce International IP Index, 4th Edition; analysis: Pugatch Consilium

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Table 10: Global Corruption Barometer factor score (standardized to 100)

ECONOMY	GLOBAL CORRUPTION BAROMETER TOTAL SCORE	FINAL SCORE (STANDARDIZED TO 100)
Algeria	64	3.87%
Argentina	66	3.99%
Australia	20	1.21%
Brazil	57	3.44%
Brunei Darussalam	NA	0.00%
Canada	19	1.15%
Chile	27	1.63%
Colombia	63	3.81%
Ecuador	67	4.05%
France	31	1.87%
Germany	21	1.27%
India	62	3.75%
Indonesia	66	3.99%
Israel	40	2.42%
Italy	57	3.44%
Japan	24	1.45%
Malaysia	48	2.90%
Mexico	65	3.93%

ECONOMY	GLOBAL CORRUPTION BAROMETER TOTAL SCORE	FINAL SCORE (STANDARDIZED TO 100)
New Zealand	9	0.54%
Nigeria	73	4.41%
Peru	62	3.75%
Poland	39	2.36%
Russia	73	4.41%
Singapore	16	0.97%
South Africa	56	3.38%
South Korea	45	2.72%
Sweden	13	0.79%
Switzerland	14	0.85%
Taiwan	39	2.36%
Thailand	62	3.75%
Turkey	55	3.32%
UAE	30	1.81%
United Kingdom	22	1.33%
Ukraine	74	4.47%
United States	26	1.57%
Venezuela	81	4.89%
Vietnam	69	4.17%

Sources: Transparency International's Global Corruption Barometer, 2015; analysis: Pugatch Consilium

Table 11: Economies' total score (average of the three factors)

ECONOMY	TOTAL SCORE (AS %)
Algeria	2.92%
Argentina	4.25%
Australia	0.99%
Brazil	2.67%
Brunei Darussalam	0.15%
Canada	1.99%
Chile	2.99%
Colombia	2.99%
Ecuador	3.38%
France	1.03%
Germany	1.04%
India	4.39%
Indonesia	3.97%
Israel	1.76%
Italy	3.11%
Japan	1.23%
Malaysia	3.36%
Mexico	2.53%
New Zealand	0.85%

ECONOMY	TOTAL SCORE (AS %)
Nigeria	3.58%
Peru	3.76%
Poland	2.56%
Russia	4.28%
Singapore	2.13%
South Africa	3.22%
South Korea	2.85%
Sweden	1.24%
Switzerland	1.51%
Taiwan	1.87%
Thailand	4.16%
Turkey	4.26%
UAE	3.39%
UK	1.26%
Ukraine	4.91%
US	2.16%
Venezuela	3.44%
Vietnam	3.80%

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Table 12: Seizure data availability by customs authorities within the 38 sampled economies

	Are the data provided officially by the customs authority?	Are the data provided in an organized and consistent manner (e.g., periodical/ annual report)?	Do the data include statistics (e.g., breakdown of seizures, items, value)?	Do the data include economies of origin?
Algeria	No	No	No	No
Argentina	No	No	No	No
Australia	Yes	Yes	Yes	No
Brazil	Yes	Yes	Yes	No
Brunei Darussalam	No	No	No	No
Canada	No	No	No	No
Chile	No	No	No	No
China	Yes, but only up to 2010 and from 2015	No	Yes	Yes
Colombia	Yes, but only up to 2015	No	Yes	No
Ecuador	Yes	No	Total value of seizures only	No
France	Yes	Yes	Total number of items seized only	No
Germany	Yes	Yes	Yes	Yes
India	No	No	No	No
Indonesia	No	No	No	No
Israel	Yes	No	Total number of seizures only	No
Italy	Yes	Yes	Yes	No
Malaysia	No	No	No	No
Mexico	Partial	No	No	No
New Zealand	Yes	Yes	Total number of items seized only	No
Nigeria	No	No	No	No
Peru	Yes	Yes	Total value of seizures only	No
Poland	Partial	No	No	No
Russia	Yes	No	Yes	No
Singapore	No	No	No	No
South Africa	No	No	No	No
South Korea	No	No	Total number of seizures only	No
Sweden	Yes	No	Yes	No
Switzerland	Yes	Yes	Total number of seizures only	No
Taiwan	Yes	Yes	Total number of items seized only	No
Thailand	Yes	Yes	Yes	No
Turkey	Yes	Yes	Yes	No
UAE	No	No	No	No
United Kingdom	Yes	No	Total number of seizures only	No
Ukraine	No	No	No	No
Venezuela	No	No	No	No
Vietnam	No	No	No	No

List of Abbreviations

ACTA	Anti-Counterfeiting Trade Agreement
BASCAP	Business Action to Stop Counterfeiting and Piracy
CBP	United States Customs and Border Protection
EU	European Union
FBI	Federal Bureau of Investigation
FDI	Foreign Direct Investment
FY	Fiscal Year
GAO	United States Government Accountability Office
GDP	Gross Domestic Product
GIPC	Global Intellectual Property Center
IP/IPRs	Intellectual Property / Intellectual Property Rights
MSRP	Manufacturer's Suggested Retail Price
OECD	Organization for Economic Co-operation and Development
TPP	Trans-Pacific Partnership
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
WCO	World Customs Organization
WTO	World Trade Organization

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